

BIOCHEMISTRY BS

More Information

Advising Requirement

Advising is mandatory for this program. Consult your department advisor or program coordinator for information.

E-advising Tools

Students are encouraged to use the interactive e-advising tools that have been designed to help them graduate within four years. These tools can be accessed through the Student Center.

The Bachelor of Science in Biochemistry includes courses in all major chemical subdisciplines: analytical, biochemistry, inorganic, organic, and physical chemistry. Substantial laboratory work, plus complementary courses in mathematics and physics, provide an excellent background for careers in a wide range of areas in science and academia, as well as preparation for professional schools, especially in medicine, dentistry, and pharmacy.

The series of courses follows the approved guidelines from the esteemed American Chemical Society (<https://www.acs.org/content/acs/en.html>) (ACS). Students can also be certified as professional chemists and awarded the ACS certificate in chemistry upon successful completion of course requirements.

Grading Requirement

All courses taken to fulfill program course requirements must be taken for a letter grade except those courses specified by the department as credit/no credit grading only.

Course Requirements for the Major: 76-78 units

Completion of the following courses, or their approved transfer equivalents, is required of all candidates for this degree. Courses in this program may complete more than one graduation requirement.

| Course | Title | Units |
|-----------------------|--|-------|
| Lower Division | | |
| BIOL 162 | Principles of Cellular and Molecular Biology | 4 |
| CHEM 111 | General Chemistry I | 4 |
| CHEM 112 | General Chemistry II | 4 |
| CHEM 270 | Organic Chemistry I | 4 |
| MATH 120 | Analytic Geometry and Calculus | 4 |
| MATH 121 | Analytic Geometry and Calculus | 4 |
| MATH 220 | Analytic Geometry and Calculus | 4 |
| PHYS 202A | General Physics I | 4 |
| PHYS 202B | General Physics II | 4 |
| Upper Division | | |
| BIOL 360 | Genetics | 4 |
| BIOL 371W | Microbiology (W) | 4 |
| CHEM 320 | Quantitative Analysis | 4 |
| CHEM 331 | Physical Chemistry I | 3 |
| CHEM 361 | Inorganic Chemistry | 3 |
| CHEM 370 | Organic Chemistry II | 3 |
| CHEM 370M | Organic Chemistry Laboratory | 2 |

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|------------------------------|-----------------------------------|--------------|
| CHEM 381 | Integrated Chemistry Laboratory I | 2 |
| CHEM 401W | Communicating Chemistry (W) | 3 |
| CHEM 451 | Biochemistry I | 3 |
| CHEM 452 | Biochemistry II | 3 |
| CHEM 453MW | Biochemistry Laboratory (W) | 3 |
| Select one of the following: | | 3-5 |
| BIOL 409 | Molecular Biology | |
| BIOL 411 | Cell Biology | |
| BIOL 412W | Bacterial Physiology (W) | |
| BIOL 414 | Plant Physiology | |
| BIOL 416 | Vertebrate Physiology | |
| BIOL 466 | Immunology | |
| BIOL 470W | Medical Bacteriology (W) | |
| BIOL 472 | Microbial Genetics | |
| BIOL 476 | General Virology | |
| CHEM 332 | Physical Chemistry II | |
| Total Units | | 76-78 |

See Bachelor's Degree Requirements (<https://catalog.csuchico.edu/undergraduate-requirements/bachelors-degree-requirements/>) for complete details on general degree requirements. A minimum of 39 units, including those required for the major, must be upper division.

General Education Requirements: 48 units

See General Education (<https://catalog.csuchico.edu/colleges-departments/undergraduate-education/general-education/>) and the Class Schedule (<http://www.csuchico.edu/schedule/>) for the most current information on General Education Requirements and course offerings.

This major has approved GE modification(s). See below for information on how to apply these modification(s).

- CHEM 401W is an approved major course substitution for Upper-Division Scientific Inquiry and Quantitative Reasoning (UD-B).

Diversity Course Requirements: 6 units

You must complete a minimum of two courses that focus primarily on cultural diversity. At least one course must be in US Diversity (USD) and at least one in Global Cultures (GC). See Diversity Requirements (<https://catalog.csuchico.edu/undergraduate-requirements/diversity-requirements/>) for a full list of courses. Most courses taken to satisfy these requirements may also apply to General Education (<https://catalog.csuchico.edu/colleges-departments/undergraduate-education/general-education/>).

Upper-Division Writing Requirement

Writing Across the Curriculum (EM 17-009 (<http://www.csuchico.edu/prs/EMs/2017/17-009.shtml/>)) is a graduation requirement and may be demonstrated through satisfactory completion of four Writing (W) courses, two of which are designated by the major department. See Mathematics/Quantitative Reasoning and Writing Requirements (<https://catalog.csuchico.edu/undergraduate-requirements/mathematicsquantitative-reasoning-writing-requirements/>) for more details on the four courses. The first of the major designated Writing (W) courses is listed below.

- CHEM 453MW Biochemistry Laboratory (W)

The second major-designated Writing course is the Graduation Writing Assessment Requirement (GW) (EO 665 (<https://calstate.policystat.com/policy/9585618/latest/>)). Students must earn a C- or higher to receive GW credit. The GE Written Communication (A2) (<https://catalog.csuchico.edu/colleges-departments/undergraduate-education/general-education/#A2>) requirement must be completed before a student is permitted to register for a GW course.